

## A B S T R A C T

## Bone replacement material with orthophosphate

**[00068]** The present invention relates to a material with orthophosphate and having a high solubility which can be used as a bioactive bone replacement material and as a substrate material in biotechnology. According to  $^{31}\text{P}$ -NMR measurements, the new material comprises  $\text{Q}_0$ -groups of orthophosphate and  $\text{Q}_1$ -groups of diphosphate, the orthophosphates or  $\text{Q}_0$ -groups making up 65 to 99.9% by weight relative to the total phosphorus content of the finished material and the diphosphates or  $\text{Q}_1$ -groups making up 0.1 to 35% by weight relative to the total phosphorus content of the finished material, and wherein according to X-ray diffractometric measurements and relative to the total weight of the finished material, 35 to 99.9% by weight of a main crystal phase consisting of  $\text{Ca}_{10}\text{Na}(\text{PO}_4)_7$ ,  $\text{Ca}_{10}\text{K}(\text{PO}_4)_7$ , mixtures thereof or mixed crystals according to the general formula  $\text{Ca}_{10}\text{K}_x\text{Na}_{1-x}(\text{PO}_4)_7$ , where  $x = 0$  to  $1$ , is contained in the bone replacement material and 0.1 to 25% by weight of a substance selected from the group consisting of  $\text{Na}_2\text{CaP}_2\text{O}_7$ ,  $\text{K}_2\text{CaP}_2\text{O}_7$ ,  $\text{Ca}_2\text{P}_2\text{O}_7$  and mixtures thereof is contained as a secondary crystal phase, and the X-ray amorphous phases contained besides the main crystal phase jointly make up 0.1 to 65% by weight.